Water Distribution 5

📖 Duration:
1 week or more

📖 Setting:
Classroom (Internet access necessary), Mission San Juan

📖 Skills: Grades 6-8
Science: 6,7,8.2C Organizes, analyzes, and interprets information to construct reasonable explanations from direct and indirect evidence.
6,7,8.2D Communicates valid conclusions
6,7,8.2E Constructs graphs, tables, maps, and charts using tools including computers to organize, examine and evaluate data.

📖 Essential Terms:
acequia, aquifer, water velocity, average rainfall, water table

CHANGE OVER TIME

Big Idea
How are the water cycle, *acequia,* river system and aquifer related?

Objectives

Students will:

- Gather data on the Internet and from weather instruments.
- Analyze and synthesize their data in a report.
- Explain the relationship between the water cycle, *acequia*, river system, and Edwards aquifer.
- Prepare a written report using observations and conclusions about changes over time in an aquatic system.
- Present an oral report summarizing the observations and conclusions about change over time in an aquatic system.

Making Connections

The water cycle adds water to the environment by means of rainfall. The Edwards Aquifer with its high water table feeds the springs that are the headwaters of the San Antonio River. The water cycle removes water through evaporation and river flow to the Gulf of Mexico. In times of high water use and drought this pattern may be disrupted.

Engagement/ Exploration (Pre-visit):

1. Using Internet, newspapers and other multimedia resources, the students will complete research on one of the following topics:

- San Antonio River - history of use from the Spanish settlers to the present
- Edwards Aquifer - height and extent of water containment area, and annual and seasonal fluctuations and the consequences

- Rainfall records for the past ten years in San Antonio compared to average rainfall for the area
- Average velocity of San Antonio River at Loop 410 South

2. Collecting weather data for a period of time at the school, students will compare this data with average rainfall data found at the San Antonio missions.

Exploration (Visit)*:*

At San Juan Mission, students will look for features that are evidence of change over time that is related to rainfall in the area. Using their observations from the mission and research data compiled during the Pre-Visit activities, they will establish relationships between the features seen at the mission and the water cycle.

Explanation/ Elaboration (Post-visit):

Using researched data, students will write a report on what they found concerning changes occurring over time and the relationship to the water cycle on one of the following items:

- *acequias*
- San Antonio River system
- Edwards Aquifer.
- City of San Antonio

Related questions to consider:

- The Spanish missionaries and Mission Indians dug wells within the mission walls. Why were these wells needed?
- Did the missions have cisterns?
- Where did the San Antonio River start? [Relate to the springs in Brackenridge Park and springs on Incarnate Word University grounds.]

Evaluation:

Students will present their report to the class summarizing the data and the conclusions on changes over time and the relationship to the water cycle. The general report rubric will be used to assess (alter as needed).

Possible extension activity: Build a model of the groundwater system.